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## THE SOCIAL SURVEY AND THE SCIENCE OF SOCIOLOGY

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The degree of exactness which any science attains depends almost wholly upon the technique and technology with which that science works. The social sciences are the least exact of all the sciences because they have a greater poverty of exact technology than other sciences. Their technology is meager and undeveloped because the phenomena which they seek to measure and report are the most complex known. It is not the complex but the simple facts out of which science is built. Any fact is simple that can be measured. Any body of facts that can be measured can be tabulated. From any body of facts that can be tabulated laws can be formulated. But social facts are difficult to measure and thus social laws are hard to formulate. The reason why the facts out of which science is built must be simple is that they must be observed to reappear in the same outward form many times. We cannot assert the reappearance of a fact, however, unless we can in some way subject that fact to measurement, or at least to quantitative representation. The reappearance of social facts is just as necessary for the formulation of a scientific law in the social sciences as the reappearance of biological facts is for the formulation of a law in zoölogy. That social facts do not seemingly, or even actually, reappear as frequently as do the facts of the so-called exact sciences is due to the fact that they are influenced by neither few nor well-defined circumstances. This irregularity of circumstances has not kept the social scientists from drawing generalizations, however, and to draw generalizations concerning facts is literally to demand a faith or trust in the reappearance of those facts, i.e., to demand a belief that these facts are obeying a law. It is imperative that the social sciences win for themselves the acceptance of their generalizations as trustworthy. A faith in such trustworthiness has almost

as great a part to play in converting a body of knowledge into "science" as has an established method of analyzing phenomena or an adequate set of working tools.

The facts with which the social scientist works are not only complex, but, more confusing still, they are for the most part living and conscious. For this reason they are often apparently unstable for any long period of time. The exact scientist works under no such handicap. The nerve cell of a crayfish, which the zoölogist observes, can neither deny the zoölogist's observation nor be influenced by what men say about it. Human beings, which the sociologist observes, talk and through their talk may destroy the trust which other people would otherwise put in the observation. Furthermore, the activities of men and groups of men may be so thoroughly influenced by other men as completely to change their behavior and thus upset the reappearance of the social fact of which they are a part or the whole. Few communities and no men are the same today that they were ten years ago. People believe and in fact know this and so refuse to trust many of the generalizations of the social scientists. So long as this is true the social sciences cannot claim to be sciences at all, for they are reporting observations and experiences that are not accepted. The social scientist is often further embarrassed by the necessity of submitting his observations to the individuals or groups whom they concern most vitally. Any refusal on the part of these individuals or groups to accept the observation as correct may seem to explode the fact itself, or at least may destroy the trust in the observation and thus in the body of science of which the observation is destined to become a part. The investigator in the exact sciences has no such trouble. The cold figures with which he must correlate his newly observed fact cannot refuse admission to the new member. Electrons, ions, atoms, and molecules, the phenomena of the physical sciences, do not talk and think. Men and communities, the phenomena of the social sciences, do.

Does the fact that the human race has developed a vocabulary and that men explain their actions by actual or averred motives back of their behavior deny that they do act, or deny that we can know anything about their acts? Does it even assert that their

actions are fortuitous, that their acts are not natural effects from commensurate or at least measurable causes? Certainly men act, and their acts—whether with or without motives—are objects of observation. There is nothing in all the world about which we know so much as we do about the phenomena of human conduct. Furthermore, if many of these phenomena are fortuitous it is because fortuitous phenomena are, by definition, only those phenomena whose laws we do not know.<sup>1</sup> By this definition many social phenomena are fortuitous, i.e., we have not formulated and so do not know their laws. This statement reveals the crux of the whole social science problem. The social sciences have not developed laws. The exact sciences have. One reason why sociology, for instance, has never developed laws is because sociologists have never learned the value of measurement. Not that there is necessarily anything scientific in mere measurement, but it is measurement which affords us the means by which it can be determined whether we have the persistent reappearance and uniformity of phenomena. If this be true the first task of the social sciences is to develop a system of technology by which they can reduce variations to the minimum and by thus doing produce uniformity. When they have done this they will have taken a very definite step in the direction of the methods of exact science which only demands that the variations be slight or the uniformity be relative. The question as to whether the social sciences, desiring as much as they do to become scientific, care to become “science for science’ sake” should not obscure the issue. Even if they always want to make the immediate application of their findings to the field of their research, they are not to be excused for seeking their facts with the telescope in preference to the microscope, or for studying abstract human relationships in preference to human groups and human behavior, or for studying society at large in preference to neighborhood societies.

The very essence of scientific method is exactness, and the prime essential of exactness is that something be exactly true of some one thing. A sufficient reappearance of this one thing in time or space, that is, the recurrence of the same fact or the occurrence of

<sup>1</sup> H. Poincaré, *The Foundations of Science*, p. 395.

numerous similar facts, will constitute a basis for generalization. Biology, for instance, may be considered to be the science of living organisms, but the exact method of biological investigation is the observation of one living organism at a time under a microscope. Sociology may be considered to be the science of living, conscious, acting and reacting human individuals and human groups. Has the method of sociological investigation ever been, and are sociologists willing that it should be, the subjecting of these human groups, one by one, to a patient analysis? It is doubtful. And for this reason sociology is inexact. Will it ever become exact? The history of its evolution gives no cause for denying that it can. "The trouble and pain that it costs the mathematician to discover one new decimal";<sup>1</sup> the long and weary experimentation by which the chemist has reduced chemical constituents to sixty elements; the development of biology from the "philosophy of living nature"<sup>2</sup> to a "mechanistic conception of life";<sup>3</sup> the common knowledge that astronomy was at one time astrology, chemistry at one time alchemy, psychology at one time the science of the soul, and even that mathematics was at one time only a perceptual way of knowing individual things—ought to suffice to give the sociologist a faith in and a promise for the future of his science.

August Comte, a long while ago, pictured the process by which a science becomes exact, or "positive," as he pleased to call it. We may agree with him that all exact sciences have passed through the three stages which he mentions, viz., the theological stage, the metaphysical stage, and finally the positive stage. We could not agree that the first two stages were science at all according to present standards and criteria of science. This does not deny, however, that the categories of knowledge which later became exact sciences were at one time theological and metaphysical bodies of thinking. If the scientists in the field of the exact sciences know and appreciate the struggle that their forbears had to go through

<sup>1</sup> H. Poincaré, *The Foundations of Science*, p. 373.

<sup>2</sup> Burden-Sanderson, "Biology in Its Relation to Other Natural Sciences," *Smithsonian Report*, 1893, p. 437.

<sup>3</sup> J. Loeb, *The Mechanistic Conception of Life*. University of Chicago Press: Chicago, 1912.

in order to present them with the basic formulas with which they now work, they should be more lenient with the social sciences, which have a right to their natural days of adolescence. Probably another thing that Comte did not see as clearly as we might desire, and one fact which many exact scientists refuse to recognize, is that no science is absolutely exact. We do have to allow for aberration in astronomy, for variation in physics, the curve of error in statistics, and relativity in all science. We know the law of gravitation not because bodies fall always and absolutely in the same way but because we have a well-developed set of tools with which to measure the way in which bodies do fall, and thus the data and formulas by which we calculate the law of gravitation are exact.<sup>1</sup> The fact of the case is that there are no more persons who observe the phenomena of gravitation than there are who observe the phenomena of human nature. There are countless millions more persons, however, who know the "one, two, three" of mathematics by which gravitation is reduced to simplicity, than there are who know and believe in the "subjective, objective, and ejective consciousness" of human beings. So long as the social scientists insist upon inventing foreign vocabularies and refuse to begin with the A B C's of the common man, just that long will they deny their science that trust which covers the multitude of personal equations, aberrations, and even errors of the so-called exact sciences.

If the social sciences are to beget this trust they must utilize not only the data of the other sciences but also to a large degree the technology by which these other sciences became exact. Comte's contention was that no succeeding science could become exact or even develop to any advanced stage until the preceding sciences had become exact. This undoubtedly is true to a large degree. A no less pertinent fact is that each science became positive before or later than some other science because it was possible to reduce its data to exact and quantitative expressions and measurements.

We must clearly recognize, of course, that the more exact the quantitative symbol is, the less fully it may represent the investigator's appreciation of the fact he is seeking to portray. To say, however, that there are social facts which cannot be expressed

<sup>1</sup> E. Mach, *Popular Scientific Lectures*, p. 256.

quantitatively is an error. The investigator may not be satisfied with the expression, but other people who want to know and appreciate the fact in some measure will be far better satisfied than they would be with some more vague and less visual description. The ideal of science is to simplify phenomena to such a degree as to be able to widen the universe of discourse, if possible, to the universal. But as Poincaré says, "What assurance is there that a thing we think simple does not hide a dreadful complexity?" He then answers his own question thus: "All we can say is that we ought to prefer the facts which seem simple to those where our crude eyes discern unlike elements." He should have added that likeness or unlikeness is measured altogether in the light of comparison with a third thing: namely, a criterion, a standard, or a definite symbol. Sociology is confronted, just at this stage of its development, with the problem of choosing between the alternative, on the one hand, of attempting to expand her universe of discourse by use of exact—if need be mathematical—terms, which will inevitably leave out much of the sympathy which the social investigator has with the objects of his observations, but which will subject these observations to the criteria of exact science, and the alternative, on the other hand, of refusing to subject her fact to such criteria and thereby sacrificing the trustworthiness which comes with facts so exactly stated. This choice may seem to resolve itself into the question of whether sociology desires to discover and reveal facts as human experiences or whether it prefers to sacrifice the soul of these facts for the sake of being scientific. Such a dilemma is based upon a total misconception of what science is; for the ultimate purpose of science, no matter in what field, is to reveal the facts of human experience. Science is a method of describing facts. As Karl Pearson says in the *Grammar of Science*, "Step by step men of science are coming to recognize that mechanism is not at the bottom of phenomena, but is only the conceptual short-hand aid by which they briefly describe and resume phenomena."<sup>1</sup> The same author says in another place, "Now this is the peculiarity of the scientific mind, that when once it has become the habit of mind it converts all facts whatsoever into science."<sup>2</sup> This probably raises

<sup>1</sup> K. Pearson, *The Grammar of Science*, 3d ed., Part I, p. viii.

<sup>2</sup> *Ibid.*, p. 12.

a very pertinent question in the field of the social sciences, namely: Are the social scientists willing to pay the price of patient discovery, tabulation, and classification of facts which is typical of the scientific mind? It is extremely doubtful whether many students of society have ever recognized their task as a task of science at all. We say it is doubtful because we are not sure that they have ever recognized their task as that of developing and working a method, and, as we have said above, science is method. The student of society has had so many interesting things to attract his attention that he has spent little time in simplifying these things and reducing his observations of them to order. Many of these facts have been facts of disorder, pathological facts, and for this reason have been superattractive. The social scientist has often employed his time in merely describing them, rather than in subjecting them to formulas which would enable him to draw trustworthy generalizations from them.

The importance of a fact is measured, scientifically, by the width of the universality which it yields. As Poincaré says, "A new result is of value, if at all, when in unifying elements long known but hitherto separate and seeming strangers one to another, it suddenly introduces order where apparently disorder reigned. It then permits us to see at a glance each of the elements and its place in the assemblage."<sup>1</sup> Such a task is more easily set than accomplished in the social sciences. It is easy enough to observe social phenomena, but it is hard to standardize these observations. Mathematics does it by counting, physics does it by weights and measures, chemistry does it by reducing everything to formulas. Even psychology does it by measuring reaction time. Every one of these exact methods, however, depends upon the possibility of isolating facts for the sake of analysis. Every one of them operates upon the expressed or tacit assumption of "other things remaining equal." Our question is, can the method of isolation be utilized in analyzing social phenomena; can the social scientist proceed upon the assumption of "other things remaining equal"? Undoubtedly the task will be more difficult than it is in the field of any of the other sciences, for the very essence of a social fact is its interdependent

<sup>1</sup> H. Poincaré, *op. cit.*, p. 371.



and composite nature. Furthermore, the social scientist is slow to proceed upon the basis of "other things remaining equal" when he realizes that the least violation of this assumption will vitiate the fact he is seeking to isolate. The complexity of social phenomena, together with the fact that they cannot be arbitrarily controlled for the sake of experimentation, probably indicates that isolation in the field of the social sciences will have to be accomplished in a more or less roundabout way.

Isolation is but the first step in scientific analysis. The steps which come between it and the formulation of laws are the steps of tabulation, classification, and correlation. The whole procedure of analysis is futile if it does not discover or establish correlations and classes out of which formulas may be constructed. That is why science always seeks the typical fact. It is only the typical fact that makes possible scientific law. Münsterberg says, "Every science considers the single facts in their relations to other facts, works toward connections, toward generalizations. Isolation is not less valuable than connection but it never forms science."<sup>1</sup> The social sciences in the step of forming connections or relations, again, have the most difficult task of all sciences. If no two men see the same thing exactly alike, how can they formulate an expression or a description of that thing which will recognize these differences and yet express the same concept, content, or working hypothesis for them both? If that which may be a fact for one observer is not a fact at all for another observer, how may they recognize this contradiction and yet establish the type? These questions and conditions present difficult problems to solve. These problems, however, are not unique to the social sciences. They are the problems of all science. It is because such perplexing experiences arise in human life that we need the simplifying method of science to resolve them. Note the following conclusion concerning the theory of errors, from an exact scientist: "We need only one thing; that the errors are very numerous, that they are slight, that each may be negative as well as positive. Simplicity of result is born of the very complexity of the data."<sup>2</sup> Even the principal

<sup>1</sup> H. Münsterberg, *Psychology and Life*, p. 195.

<sup>2</sup> H. Poincaré, *op. cit.*, p. 405.

of inertia or the law of acceleration must be closely guarded in experimentation in order to yield uniform results. The fact that the conditions of the experiment can be set and guarded does not assert that physical bodies actually follow these principles and laws in nature. All it asserts is that physicists have succeeded in standardizing their observations of these bodies by reducing them to mathematical formulas. The social sciences must do somewhat the same thing. They will never be able completely to control the conditions of the experiment nor completely to isolate their facts, and these facts will, as they have already done, impede progress toward exactness. On the other hand, it may be that these very conditions will assure them of having more nearly analyzed things as they naturally are or as they naturally act, and thus of having more nearly formulated a law of true behavior, than any other science has done. It is the ideal or purpose which will lead the social scientist to attempt to develop and utilize scientific methods, that is needed just now.

Sociology developed through that period of political and social philosophy in which men were arguing the contract, conflict, imitation, and countless other theories of how people came to be living together in an organized way. Other sciences passed through similar evolutions. Biology for a long time was nothing but the "philosophy of living nature." It remained such until the invention of technology made it possible to isolate and to discover great numbers of facts hitherto unknown. It was only then that the biologists became so busy with and interested in facts that they forgot to philosophize about the nature of things. This behavior viewpoint is gradually taking hold upon every science. Attempts have been made from time to time to establish marking systems which would reduce social facts to this comparative basis.<sup>1</sup> These systems, while laudable attempts, were created rather than evolved. Their founders asked social investigators to cease being interested in facts long enough to learn a new language. They failed because social workers refused to do this and because they knew that these systems were imposing upon facts names unfamiliar to the people

<sup>1</sup> F. H. Giddings, "A Social Marking System," *Quarterly Publications of the American Statistical Association*, XII (June, 1910), 124-29.

who were dealing with these facts. Quite the opposite is true of the methods which the social surveyor presents to social science. These are the methods which men who are seeking to solve practical problems borrow or invent just because they are good ways of representing and measuring facts. These methods have not evolved or been created because they are scientific, but because they are efficient. The investigator is seeking a means by which he can accomplish things, and in order to accomplish these things he has to know facts. He goes at his task, finds facts, and makes them work. Other people analyze, generalize, and systematize his methods and findings and call them science.

It is through methods such as those being evolved and used by the social surveyor that sociology will probably come to utilize exact methods. For sociologists are going to be as slow in the dedication of their time to the gathering of facts that cannot be observed and tested in the laboratory as they have been in the adoption of fortuitous marking systems. Happily neither of these things is altogether necessary, though probably the former would be salutary. There are myriads of social data which are being gathered by experts for immediate purposes and which the sociologist needs but to correlate and utilize in order to have exact facts. It has been said that fact gathering is the A B C of the social survey. The question is whether the facts gathered by the social surveyor can be utilized for scientific purposes. Such a question would seem to be idle, however, unless we believe in a "science for science" sake," and sociologists will probably never be interested in any such science. The only difference, as far as the sociologist is concerned, between a practical fact and a scientific fact should be that a practical fact is a fact at work and a scientific fact is that same fact subjected to measurement and correlated with others of its kind. The expert and the sociologist are not necessarily one, but they are mutually helpful and co-operative in the development of sociology as a science. The expert, dealing with applied fact, is able to utilize the findings of all other experts in his own and allied fields because of the generalizations of the sociologist, who has simplified these findings and reduced them to order. On the other hand, it is inevitable that the theory concerning any body of phe-

nomena shall become clearer and sounder as more concrete and sounder methods of gathering, tabulating, and classifying facts are discovered or invented.

The rapid development of the exact sciences which was incident to the invention of time-, weight-, and space-measuring technology; the recent development of psychology into a more or less exact science because of definite means and methods of measuring reaction time; the wide use which is being made of mathematics and statistics by all sciences, are contemporary developments. Why should sociology not also profit by these exact methods? Or possibly the question might better be asked, Why should not sociology also become scientific? Karl Pearson said, "Every group of natural phenomena, every phase of social life, every stage of past or present development is material for science. The unity of all science consists alone in its method, not in its material. . . . It is not the facts themselves which make science, but the method by which they are dealt with."<sup>1</sup> August Comte said, in essence, that each succeeding science in the ascending scale toward complexity had to wait upon the maturity of the preceding sciences before it could develop into the positive stage. Münsterberg said that "naturalistic dissolution" started with the rapid development of physics and chemistry.<sup>2</sup> Undoubtedly, the chief cause of progress in biology was due to the progress which had been made in the sciences upon which it depended—physics and chemistry. Burdon-Sanderson says: "This rapid advance came in biology not because it was any more possible than before to conceive of the organism otherwise than as a working together of parts for the good of the whole, but rather that men were so occupied with new facts that they had not time to elaborate philosophies."<sup>3</sup> Is there nothing of this kind destined to occur in the field of sociology? Our belief is that it has already occurred. The social survey may not be the master-tool for measuring and simplifying the complex facts of sociology, but it is a step in that direction. It is a unique bit of technology which is capable of estimating and reporting

<sup>1</sup> K. Pearson, *op. cit.*, p. 12.

<sup>2</sup> H. Münsterberg, *op. cit.*, p. 3.

<sup>3</sup> Burdon-Sanderson, *op. cit.*, p. 445.

social facts quantitatively without sacrificing the soul of these facts altogether. Furthermore, it uses the same methods which the other sciences use and so is in accord with the thesis of the *Grammar of Science*. It is contemporary with pragmatism in philosophy, cost accounting in economics, and the development of exact tests and measurements in education and psychology. Its earliest development may be traced back to John Howard's study of prisons in 1777, to Lombroso's positive school of criminology in Italy, and Le Play's study of family budgets in France.

Le Play did not make his study of family budgets as a survey of practical facts alone. He believed that the chaos which he saw about him was a chaos of social ideas and therefore he argued the need of social generalizations and conclusions drawn from a patient study of facts. He chose the family as the unit of investigation because he believed in the rehabilitation of the powers once invested in the father of the family, who was the conductor of the workshop. We are not concerned with his theory of rehabilitation of the family, but we are bound to recognize his method of discovering the facts upon which he based his theory. He laid down definite rules of research, and proceeded by use of a questionnaire in which were carefully and systematically tabulated all the facts which his investigators gathered. Each investigator was to proceed by three methods: first, direct observation; second, direct questioning of the members of the family; and third, questioning of others concerning the family. The data gathered by each of these methods could then be checked by those gathered by the other two methods. Le Play insisted that all estimates be tabulated in terms of measures and money of the country in which the investigation was being made. This was typical of his desire to subject the results of all observations, in the social sciences, to the laws of mathematical science and to the criteria of the exact sciences. In expressing this conviction he says:

The surest means of knowing thoroughly the moral and the material life of men is much like the process which chemists use to learn the nature of minerals. A given mineral is known when by analysis it has been separated into the elements of which it is composed, and when it is found that the combined weight of all these elements is equal to that of the specimen that has been

analyzed. A numerical verification of a similar nature may always be made by the scholar who analyzes carefully the existence of the social unit constituted by the family.<sup>1</sup>

The theory of sociology was not influenced directly by the work of Le Play, but it has undoubtedly been very greatly influenced, in the last two decades, by similar investigations. Studies which have been made of family budgets, standards of living, birth and death rates, marriage and divorce rates, wage rates, crime rates, the poverty line, and many other similar problems, have without question not only presented the sociologists with a large body of data from which to generalize but have also given them a mind to distrust generalizations based upon less specific findings. Professor Small says:

. . . people who have focused their attention upon such questions can no longer be hoodwinked by the scientific pretensions of any more wholesale and summary methods of asking and answering questions about human experience. If we are at our wits' end to understand the boys in the nearest schoolyard, it is barely possible that no one has any better understood the crusade of the children. . . . If we find ourselves guessing about the undercurrents of politics in our own ward, the suspicion naturally steals in upon us that we may have believed fairy tales about the Wars of the Roses or the revolts of the Italian cities, or the European war of 1914. . . . In a word, this at least is a contribution which present fashions in sociological research are making to the objectivity of social science in general. . . . Otherwise expressed, the sociologists are at least performing the negative service of encouraging a wholesome suspicion that much remains before anything which is conventionally accepted as social science will be able to stand the test as more than one of the tributary techniques of science, or as a gathering of materials for science.<sup>2</sup>

Social surveys have already contributed a small library of facts which are pertinent to the problems with which the sociologist deals, and the social survey has just begun to operate as a definite method in the field of sociological research. The number of social

<sup>1</sup> P. G. F. Le Play, *Ouvriers Européens*, 2d ed., I, 224; cf. also an article by Professor C. A. Ellwood, in *American Journal of Sociology*, II, 662-79; and an article on "La Science Sociale" in *Annals of the American Academy*, IV, 620-54. This latter article is written by Paul de Rousiers and translated into English by Cornelia H. B. Rogers.

<sup>2</sup> A. W. Small, "Fifty Years of Sociology in the United States (1865-1915)," *American Journal of Sociology*, XXI (May, 1916), 834-35.

surveys that have been made since the Pittsburgh Survey runs probably into the hundreds. Truly, as Professor Small implies, it is the present fashion in sociological research. The social-survey methods and findings are certain to play a more and more important rôle in dictating the type of attitudes with which the sociologists will approach their work in the future. When the social scientists have become thoroughly imbued with the mistrust of these "wholesale and summary" methods of which Professor Small speaks, they will more diligently seek exact methods of knowing phenomena and will thus probably play a dominant rôle in the furthering of the social survey as a method of scientific research.

Probably the chief thing that has kept the sociologists from reducing their facts to measurements is the belief that there is an inherent difference between the facts of the social sciences and the facts of the other sciences. Men who accept the division of labor as an essential basis for scientific progress and research do not seem to have attained an appreciation of the more profound fact of the multiple aspect of phenomena. Sociologists have been confused by this multiple aspect of phenomena. They have been unwilling to simplify their body of data because these data appeared to be so complex and variable. No two men see the same thing in the same way. What is a fact for one man is not a fact for another. People who are baffled by this seeming variability have failed to see that the fact that different men look at the same thing in different ways is the very basis of the differentiation of the sciences. Münsterberg says, "A body may appear very different from the geometrical, from the physical, and from the chemical points of view, while each one gives us truth."<sup>1</sup> Psychology and sociology might just as well have been added to this list, for a social fact is after all only the social aspect of any other fact. A social fact is different from a historical fact, for instance, in that it has relatively little to do with temporal order and relatively much to do with conditioning circumstances. It is different from the facts of exact science only in the use that is made of it. Neither of these differences need have anything to do with the method by which facts are discovered. The social sciences should use all the methods

<sup>1</sup> H. Münsterberg, *op. cit.*, p. 184.

and, wherever possible, all the tools of all other sciences. They should develop a technique and create a technology of their own, if possible, out of the things they borrow from other sciences and out of the beginnings they have developed in their many investigations. For, as already stated, the very existence of a science depends upon the tools with which it works. The social sciences must have tools with which they can isolate their facts for the sake of subjecting them to rigid analysis and exact tabulation. Professor Small says, "Today we are bolder than ever before in professing the belief that we cannot know things as they are unless we know large reaches of them as subject to human control."<sup>1</sup> Students of society cannot take their experiments into the laboratory. They cannot literally use the microscope or test-tube. Many of their phenomena are so intricately interwoven with other phenomena that physical segregation is impossible. They would take a long step forward if they would even test all their investigations and reports of those investigations by the canons of inductive logic. The method of agreement, the method of difference, the joint method of agreement and difference, the method of residue, and the principle of concomitant variations are all methods of isolating facts. The statistical method is a most thorough method of isolating facts and a method which has been employed altogether too little in the social sciences. The canons of inductive logic have been used quite purely as thought-processes, however, and seldom have been applied to the actual problem of isolating social facts for the sake of analyzing them more thoroughly.<sup>2</sup> Statistics, on the other hand, have often so thoroughly isolated the facts that the real social significance of these facts has been lost. The social survey appears to be a tool capable of being utilized to isolate facts without

<sup>1</sup> A. W. Small, *op. cit.*, p. 864.

<sup>2</sup> The author analyzed thirty-eight articles, all of which appeared in the same year and were published in the same periodical, from the pens of sociologists. It was his purpose to test the methods of these contributions by the canons of inductive logic. He attempted to classify the articles into three classes: the first including those which violated or ignored inductive reasoning; the second, those which did not lend themselves to inductive tests; and the third, those which used, to a greater or less degree, inductive reasoning and methods of investigation. According to his judgment only twelve of these articles actually made use of inductive reasoning, while seventeen of them either ignored it altogether or actually violated some one canon of inductive logic.



sacrificing their social aspects. In its composite nature it retains all the envioning circumstances, which are so much more an essential part of the social fact than they are of the historical fact or the fact of exact science.

The first essential of the social survey is that it be local. It is a survey of a township, a county, a community, or a definite social situation.<sup>1</sup> The first essential of a scientific fact is that it be definite knowledge concerning some specific thing. The survey and science are one in their demand that observations be localized or isolated. The survey, as well as science, is diagnostic. It seeks definite information concerning one county, one township, one parish, or one community. It goes a step farther in its method of isolation when it breaks up the investigation of a definite locality into typical sections and presents the findings in typical categories. A community is usually sized up by means of a pathfinder survey, and a cross-section, if judged to be typical, is taken for detailed investigation. The following statement is quoted from a survey report: "This district was chosen because it appeared on examination to be a fairly representative section. The dwellings . . . range all the way from miserable shacks to comfortable and commodious houses; the population is mixed; the occupations are sufficiently varied to furnish a wide range of conditions."<sup>2</sup> The survey from which this quotation is taken demonstrates three steps in the method by which the social survey isolates social facts. First, this survey sought definite data in a definite community about definite things, namely, "the earnings, expenditures, and living conditions of a group of working people of New Haven." Second, it took a typical cross-section of the city. Third, it completed the process by breaking up the investigation into street schedules. The cross-section method of analysis has literally subjected social situations to laboratory conditions. Survey schedules, which are practically universal, are literally the analogues of the more quantitative categories of mathematics. A certain type of sociologist is liable to scout the idea that any such method will ever give us a doctrine of population or a correct theory of geographical or economic determinism. The reply to such an objec-

<sup>1</sup> P. U. Kellogg, *The Social Survey*, p. 3.

<sup>2</sup> H. P. Fairchild, *An Industrial Survey of a New Haven District*, pp. 3-4, 7.

tion is that science is not seeking doctrines but generalizations based upon facts. The question for the sociologist to answer just at this stage of the development of sociology is not "What do these facts tell us about Malthus' law?" but "Does Malthus' law tell us anything about these facts?"

Although isolation of facts is essential in the analysis of phenomena, isolation alone, as we have noted, never forms a scientific law. Classification and correlation together furnish the final step in the formulation of a scientific law. The recognition of this fact raises another question concerning the survey method: namely, Does the social survey classify and correlate? Does it establish types? Does it make possible universal generalizations concerning social facts and situations? Another question which will immediately suggest itself to the skeptic is, Are there any social facts that are universal? The author knows of no such facts. Furthermore he feels quite sure that the social survey will never discover any such facts. He is just as thoroughly convinced, however, that no man knows any such facts and that no science can ever discover such facts. The only sense in which a fact can be considered universal is that numerous facts can be subjected to universal categories of measurement. Gravitation is not the same in the valley as it is on the mountain-top. The magnitude of stars varies when conditioned by even so fortuitous a thing as a cloudy night. Even statisticians can plot a symmetrical curve only by having errors so numerous that they can allow them to negative each other. Why should the sociologist be so baffled by the seeming fluctuations of his phenomena? What he should do is to seek to analyze these social situations by means of differentiation and isolation, and then to simplify them by classification. We believe that the social survey is capable of assisting in the classification, measurement, and simplification, as well as in the isolation and differentiation, of facts. The fact that social surveyors use quite universally the same or similar schedules in all of their investigations is, in itself, a step toward classification, as well as toward differentiation.<sup>1</sup>

<sup>1</sup> The writer made a study of eighty sets of survey schedules and found that there are about a dozen categories that appear in practically all survey schedules. A study of surveys of a specific type—school or church surveys—would reveal a set of schedules that is quite thoroughly standardized.

The survey, furthermore, uses much of the machinery of other sciences in subjecting social facts to quantitative representation. It is upon these quantitative expressions and categories that comparison depends, and, without the method of comparison, science is impossible. When the sociologists put themselves universally to the task of using comparative methods they will by right of that very fact set themselves the task of discovering and inventing standard measurements, categories, and symbols of representation which are capable of comparison one with the other. Sociology will then be scientific for the same reason that the exact sciences are scientific; namely, it will be scientific in method. We quote once more from the *Grammar of Science*: "It is not facts themselves which make science but the method by which they are dealt with."<sup>1</sup> The social survey is not the only method of social investigation that is comparative and quantitative. It is the fact that the social survey is always comparative and always quantitative, and that social surveys are becoming more prevalent every day, that makes it a method of such great promise in the field of social research. Booth says, "Comparisons with the past are absolutely necessary to a true comprehension of all that exists today; without them we cannot penetrate the heart of things."<sup>2</sup> The author of *The Coopersburg Survey* expressed the opinion that "readings would be simplified and their permanent, intrinsic, and comparative values enhanced if a uniform plan were followed in the presentation of findings."<sup>3</sup> Accordingly the Coopersburg report follows the schedules of the United States Department of Agriculture in its "Farm Surveys." Weld, in his survey of the Red River Valley community,<sup>4</sup> draws all his conclusions in the light of definite standards. He makes definite comparisons between country and village families under thirty-three schedules. *The Cleveland Survey*<sup>5</sup> makes all of its comparisons between what is being done in the Cleveland schools and the standards of an ideal school system. Cubberley, in *The*

<sup>1</sup> K. Pearson, *op. cit.*, p. 12.

<sup>2</sup> C. Booth, *Life and Labor of the People of London*.

<sup>3</sup> Z. L. Potter, *The Coopersburg Survey*, p. 9.

<sup>4</sup> L. D. H. Weld, *A Social and Economic Survey of a Community in Red River Valley*.

<sup>5</sup> *The Cleveland Survey*, Vol. X.

*Portland Survey*,<sup>1</sup> never leaves the basis of statistical comparison. His comparisons are made either between what he found in Portland and similar findings elsewhere, or between what he found in Portland and an ideal standard. The social surveyor follows the physician, the engineer, and other field-workers in that he uses, in any given survey, not only standards of measurement, but experiences also that he has developed in the field or laboratory. Bogardus, in his study entitled "The Relation of Fatigue to Industrial Accidents,"<sup>2</sup> demonstrates in a very convincing manner the possibility of utilizing laboratory methods and direct observations of social situations as checks upon each other. The investigator worked out his laws of fatigue in the laboratory and then visited a great number of factories in order to observe men subjected to the same conditions which he had set for himself in the laboratory. He found that the curve of accident which he worked out for the factory conditions was identical with the curve of fatigue which he worked out in his laboratory experiment. We might give examples from a hundred other surveys and investigations all to the same end, but rather than do that we shall, for the sake of summary, attempt to compare as concisely and as briefly as possible the general methods and criteria of science with the methods and criteria of the social survey, and thus attempt to get some judgment upon the present limits and future possibilities of the social survey.

We know of no more definite means of comparing the methods of the social survey with the methods of science than that of stating, as definitely as possible, the criteria of science and then stating the demonstrated procedure of social surveys. The first and most important criterion of science is that it be a method of exact and impartial analysis of facts.<sup>3</sup> The social survey, without a single exception so far as the writer knows, has developed upon the basis of impartial analysis. It has developed practically outside the field of theoretical sociology and so has escaped altogether

<sup>1</sup> E. P. Cubberley, *The Portland Survey*.

<sup>2</sup> E. S. Bogardus, "The Relation of Fatigue to Industrial Accidents," *American Journal of Sociology*, XVII, 206-22, 351-74, 512-39.

<sup>3</sup> K. Pearson, *op. cit.*, p. 9; H. Poincaré, *The Value of Science*, p. 137; E. Mach, *Popular Scientific Lectures*, p. 232; F. Enriques, *Problems of Science*, p. 67.

any preconceived notions which social theorists may have had. The case-worker and other expert field workers who have developed the method of the social survey have cared only for the facts which were actually operative in the community where they labored. They accumulated a large body of data for the sake of carrying on specific projects, with no thought of its scientific significance, but we have come to see that these data are the basic facts out of which social theory must be formed. These social workers and investigators have been not only impartial in their collection and analysis of facts, but they have also been exact in their methods. They were seeking these facts only because they wanted to use them for very definite purposes. These definite purposes demanded that the facts be exact, that they be representative of some very definite condition or situation, and that they be so specifically stated that other social workers would be able to understand and use them.

The second criterion that we would name is that the phenomena which are the objects of investigation be typical, that they be representative of a species, a type, or a class of facts.<sup>1</sup> The social survey attempts to meet this criterion. Not all surveys have been made with the purpose of investigating or discovering typical situations, typical counties, or typical communities and sections of communities. Many of them have specifically stated this to be their purpose, however. To what extent they have accomplished the purpose we shall probably be unable to state until a much greater number of surveys has been made. The only thing that we can definitely assert at this state of the development of the social survey is that many social surveyors hold it as their ideal to discover and reveal typical phenomena.

The third and final general criterion of science is that it discovers or formulates scientific laws.<sup>2</sup> The social survey lays no claim to having accomplished this final step in scientific method. Social surveying is the task of the expert. The formulation of the laws

<sup>1</sup> K. Pearson, *op. cit.*, p. 29; H. Poincaré, *op. cit.*, p. 140; E. Mach, *op. cit.*, p. 194; F. Enriques, *op. cit.*, p. 50.

<sup>2</sup> K. Pearson, *op. cit.*, p. 37; H. Poincaré, *op. cit.*, p. 13; E. Mach, *op. cit.*, p. 156; F. Enriques, *op. cit.*, pp. 68-69.

science is the task of the scientist. Since, however, few if any social phenomena can be taken into the laboratory, and since the social scientists are quite universally men whose time is occupied in academic pursuits, it would seem advisable that the social expert and the professor of sociology should form a coalition for working out a method of scientific research and analysis in the field of the social sciences. When this alliance is formed the social survey will have accomplished the final step in scientific procedure, for the specific facts which the surveys have discovered will then be made over into correlated or collated facts, and the exact methods with which the surveyor operates will have furnished the social scientist with a much-needed technique and technology.

Sociologists and social surveyors, whether they recognize it or not, are interested in the same field of phenomena. Professor Small's designation of the "groups of personal wants" as: "(a) health, (b) wealth, (c) sociability, (d) knowledge, (e) beauty, (f) rightness"<sup>1</sup> is but a theoretical way of stating facts which could be, and in fact have been, surveyed. The attempt of Professor Giddings to classify human associations into eight kinds of rational societies<sup>2</sup> is but a theoretical way of accomplishing the same thing that the surveyor accomplishes by detailed study of communities. Nor have this common interest and direction of effort been altogether unrecognized. The findings of the social surveys are of immediate value to many courses in sociology. Practically no instructor in the field of applied sociology attempts to organize his courses or develop his field outside the body of data which has been furnished him by social surveyors or by those groups of social investigations which preceded the social survey and out of which the social survey has evolved. It was in the field of criminology or criminal anthropology that the positive method in sociology made its first real progress.<sup>3</sup> Practically all the knowledge and principles in the field of social pathology and other philanthropy courses have been furnished by case-workers, social

<sup>1</sup> A. W. Small and G. E. Vincent, *An Introduction to the Study of Society*, p. 175.

<sup>2</sup> F. H. Giddings, "The Development of Sociology," *American Journal of Sociology*, X, 167.

<sup>3</sup> Whether or not the author accepts Lombroso's theories of crime does not vitiate the fact just stated.

investigations of different natures, and recently by social surveys.<sup>1</sup> The comparatively new fields of urban and rural sociology depend almost wholly upon investigations and surveys for their body of knowledge. Especially is this true of rural sociology<sup>2</sup> because of the great number of rural surveys that have been made in the last five years.

The contributions of the survey do not by any means end with the courses just mentioned, nor do they end with the field of sociology. Education,<sup>3</sup> economics,<sup>4</sup> and political science<sup>5</sup> have all benefited by these investigations. Some notable contributions have been made to the field of ethnology by the far-reaching and suggestive extension of the survey method to the study of whole tribes and peoples. *The Veddas*, a survey of the people by that name, made by Mr. and Mrs. C. G. Seligmann; and *The Report of the Torres Straits Expedition*, a composite survey of the Eastern Islanders of Torres Straits, conducted in five sections, each under an expert in his field of research,<sup>6</sup> are investigations which suggest that the social survey need not confine itself to any narrow territorial domain or community. In fact the method of anthropological and archaeological research has practically always been more or less the same method as that of the survey. The farther back into the recognized and established fields of science the survey method can penetrate, the more quickly will it be accepted as a true method of science rather than as a mere fad or fashion. A few illustrations cited from the two ethnological surveys just mentioned will serve to demonstrate the value of the survey method to bodies of knowl-

<sup>1</sup> See S. Nearing, *Income*; H. H. Goddard, *Feeble-mindedness*; H. Best, *The Deaf*; *The Cost of Living in the District of Columbia* (a survey made by the U.S. Bureau of Labor and literally hundreds of other investigations which in the past have contributed to the field of applied sociology and which today are keeping the body of data up to date.)

<sup>2</sup> P. L. Vogt, *An Introduction to Rural Sociology*.

<sup>3</sup> E. A. Kirkpatrick, *Foundation of Sociology*, chap. 20; E. P. Cubberley, *The Portland Survey*.

<sup>4</sup> S. Nearing, *Income*; F. H. Streightoff, *Standard of Living*; R. C. Chapin, *Standard of Living*.

<sup>5</sup> W. H. Allen, *Efficient Democracy*; and the many contributions of numerous municipal bureaus of research.

<sup>6</sup> *Report of the Cambridge Anthropological Expedition to Torres Straits*. London: Cambridge University Press, 1908.

edge which are fairly deeply intrenched in theoretical tradition. Seligmann made definite psychological and physiological tests upon a number of the Veddass. His scientific examination of their senses of vision, hearing, and pain, made by means of modern scientific technology, serves to show how thoroughly erroneous an accepted theory in a given field of science can be.<sup>1</sup> Volume VI alone of the Torres Straits Report contains three maps and seventy figures (photographs, plates, and drawings). One of the maps is a topographical or physiographical as well as a social map.<sup>2</sup> It is as perfect a specimen in miniature of the situation under study as any enlarged graph or drawing of a zoölogical specimen could be. The graphs and plates, which are either photographs or drawings of the implements, instruments of magic, etc., coupled with the vivid description, the material for which was obtained by living and talking with the people themselves, and amplified by contributions from missionaries, traders, and travelers, furnish an authentic analysis of the life of one of the most primitive of peoples. A comparison of the findings of a few such surveys as the two cited would add more to the body of scientific ethnology than has yet been contributed to that field. Both the surveys made thorough and exact studies of types of social organizations. Rivers' genealogical tables of the Murray Islanders is as perfect a scientific compilation as could well be imagined.<sup>3</sup> What the findings of such surveys can do and have done in the field of anthropology and ethnology, they can do and probably are destined to do for any body of knowledge or field of research to which they are applied. And since the survey method is nothing whatever but the recognized and accepted comparative method of all science, the two steps needed to assure its application to the field of sociology are a desire on the part of the sociologist that it be applied and an experimental working out of technologies which will reduce observations to a comparative basis. The contributions of the social survey are limited largely by the measure of these two steps.

<sup>1</sup> Cf. H. Spencer, *The Principles of Sociology*, I, 76-77, with C. G. and B. Z. Seligmann, *The Veddass*, chap. xvi.

<sup>2</sup> *Report of the Torres Straits Expedition*, VI, 170.

<sup>3</sup> *Ibid.*; see especially pp. 78 and 79.



The influence of the social survey has been limited because of facts which we have already mentioned but which we may be permitted to summarize at this point. The survey method has been developed almost wholly outside the field of theoretical sociology. This has resulted in three very distinct things: First, surveys have been made generally for propagandic purposes, i.e., as bases for community programs.<sup>1</sup> Second, the fact that surveys have been made for local purposes has kept them largely confined to local, almost colloquial, situations. Third, they have been largely made by field workers who do not have the opportunity to know and thus appreciate national and world situations, which are of dominating interest to the sociologist. The last-named fact probably has more to do with the lack of unity of efforts of the investigator and the sociologist than any other one thing. The sociologist has at his command all the contributions of history, economics, political science, psychology, and biology. To him the study of society is the study of social evolution, social change, social progress—social dynamics, in short. Therefore, to him the social survey seems static in its method. It measures things as they are now. It refuses to generalize from things it cannot observe. It is purely inductive. The survey report may contain a chapter on "the history of the community," but this history will be a summary of growth of population, topography, and similar purely tangible and measurable facts. The sociologist sees and knows that a sociology constructed out of such limited data would be quite different from any other social science if not different from all sciences.

What then must we conclude concerning the survey, the survey method, and the science of sociology? One thing we have already concluded, viz.: that the expert investigator has for some time been furnishing the applied fields of sociology with a large portion of their data; that survey findings have even altered social theories in the field of ethnology and anthropology. It is probably destined to do the same thing in every field to which it is applied as a method of research. We may further conclude that the co-operation of the social surveyor and the sociologist should not and does not end with the influence which the expert has upon the theories of the

<sup>1</sup> E. W. Burgess, "The Social Survey: A Field for Constructive Service by Departments of Sociology," *American Journal of Sociology*, XXI, 492.

scientist. Schools of philanthropy, which are literally departments of applied sociology, train experts by teaching them the fundamentals of the social sciences and the technique of field work. Teachers of sociology everywhere make more or less use of the community in which they teach as a laboratory. In large cities like Chicago, New York, Philadelphia, Cleveland, and Minneapolis departments of sociology have assisted social agencies much in their organization and have used them as directing agencies for students who are doing field work. The University of Kansas, University of Southern California, University of Missouri, University of Minnesota, and University of Chicago offer courses in social surveying. Members of the extension divisions of a number of universities are now the leaders in their respective states, especially in rural surveying. A social survey of Fargo, North Dakota, was made by a sociologist upon the request of a local organization. The Child Welfare Association of Columbia, Missouri, recently requested the department of sociology of the University of Missouri to make a survey of the condition of children in that city. The state board of charities asked the same department for a survey of Outdoor Relief in Boone County, Missouri. The first of these surveys is just completed and the second is under headway. The field work has been done by students in a class in "Methods of Social Investigation" in the department of sociology of the University of Missouri. Why should not all departments of sociology train men and women to be expert social surveyors? These men and women would then in time turn back to these departments of sociology a large and reliable body of data which would be of the utmost value to the science of sociology. If the social scientist is to depend upon the social survey for his exact data and exact methods of measuring and reporting facts he should be willing and anxious to assist in developing the social surveyor. When this is done, as it surely will be done, the expert investigator will be capable of seeing beyond the immediate implications of his findings to their wider significance. And when he does this he will probably extend the survey beyond the local community to state and national, perhaps world, situations and problems, as indeed the Rockefeller and Sage Foundations have already done.

In final conclusion we should consider two weaknesses which seem to be inherent in the technique and technology of the social survey. First, the fact that the survey is highly inductive has led to the objection that it will forever be limited in application by both time and place. It is asserted that it must thus confine itself to the present and future while there are many social situations the understanding of which demands an acquaintance with wide bodies of facts in both time and place. Second, some of these facts may be out of reach of the surveyor because they demand a study of the history as well as the present status of the social situation. To base an objection on the first of these conditions is little short of foolish. No zoölogist who asserts that he has a knowledge of the nervous system of frogs claims to have studied the nervous systems of all the frogs in existence. He does not even assert that a frog might not or does not have a nervous system different from the "nervous system of frogs" that he described. All he asserts is that this is a typical frog's nervous system and that he has reconstructed or described it after having studied a number—sometimes one number, sometimes another number—of frogs. The social surveyor sets for himself a no more difficult task than the exact scientist sets for himself, namely, to study a sufficient number of typical specimens. Concerning the second condition, which seems to make the survey method a study of static conditions, about all we can say is that the social survey is new. If it analyzes, measures, and reports things as they are today and tomorrow these days will soon be the yesterdays of the many succeeding days to come, and these findings will be the history of those new days' social situations. If it discovers and tabulates the facts today, tomorrow, and all other days it is to be hoped, and the writer believes to be expected, that its influence will not end with the applied courses in sociology. If it observes and tabulates facts by means of some exact technology and does it in an unprejudiced way it should furnish a means for checking up on present social theories, and ultimately of furnishing the bases of more exact formulation of scientific laws of social phenomena. When these things become "the habit of mind" of sociologists a much-needed and long step will have been taken in the direction of a scientific sociology.